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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/590,443	08/24/2006	David Roberts McMurtry	129072	8471

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EXAMINER	
CONNOLLY, PATRICK J	

ART UNIT	PAPER NUMBER
2877	

MAIL DATE	DELIVERY MODE
11/10/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/590,443	MCMURTRY ET AL.	
	Examiner	Art Unit	
	PATRICK J. CONNOLLY	2877	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *3rd May 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *24th August 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *08.24.2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Specification

The disclosure is objected to because of the following informalities:

The disclosure should contain "Background of Invention" and "Summary of Invention" sections.

Additionally, it appears that what would constitute the summary section appears to be a reproduction of the claims.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 13 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

It is unclear what is meant by "one" of the plurality of segments having "no structure".

This does not appear to be a positive limitation, and has not been further treated on the merits.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-5, 9-11, 14, 19 and 20 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by U.S. Patent No. 5,574,560 to Franz et al (hereafter Franz).

As to claim 1, Franz discloses an interferometer system including (see Figure 1):

a measurement (M) and reference (R) beam that combine at grating (9) to cause a spatial fringe pattern;

an optical device (said grating 9) which interacts with the intefering beam such that the light is spatially separated in different directions (terminating in detectors 10, 11 and 12); and

wherein the intensity modulation of the multiple directions of the spatially separated light is phase shifted (see column 3, lines 20-30).

As to claims 2 and 3, Franz discloses separating the interfering beam at the point of combination of the reference and measurement beam. This would cause the fringe separation to happen over a fringe or multiple fringes.

As to claim 4, Franz discloses separating the interference pattern into 3 sub-beams.

As to claim 5, Franz discloses detectors (10, 11 and 12).

As to claims 9 and 14, Franz discloses a diffractive grating (9).

As to claim 10, Franz discloses a grating which is comprised of a plurality of sections (ridges and valleys), spatially separating the light in different directions.

As to claim 11, Franz discloses a grating which is comprised of a repeating pattern of ridges.

As to claims 19 and 20, Franz discloses generating a known phase difference with signals in quadrature (see column 2, lines 22-27).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 6, 7, 12 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Franz as applied above.

As to claim 6, 7 and 18, Franz is silent with respect to the use of fibers or fiber bundles.

The Examiner takes Official Notice of the fact that it is well known to use fibers to transport light in order to minimize environmental interference with the beam paths.

It would have been obvious to one of ordinary skill in the art at the time of invention to include fibers in the apparatus of Franz in order to achieve said advantage.

As to claim 12, Franz is silent with respect to blaze gratings.

The Examiner takes Official Notice of the fact that it is notoriously well known to use blaze gratings as diffractive optics as they are cheap and easy to manufacture.

It would have been obvious to one of ordinary skill in the art of invention to include a blaze grating in the system of Franz in order to achieve said advantage.

Claims 8 and 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Franz as applied to claims above, and further in view of U.S. Patent No. 5,120,132 to Spies et al (hereafter Spies).

As to claims 8, 15, 16 and 17, Franz is silent with respect to a refractive optical element for fringe separation.

Spies teaches a similar system for interferometric analysis including spatially separated beam analysis.

Spies further teaches that this spatial separation can be implemented either through diffraction (Figure 2: via grating 12), or refractively (see column 3: lines 55-60) in order to vary phase displacement.

It would have been obvious to one of ordinary skill in the art at the time of invention to include this refractive variation in combination with the apparatus of Franz in order to control phase displacement.

With further regard to claim 8, the Examiner takes Official Notice of the fact that a Fresnel lens is a notoriously well known refractive optic used in interferometers for compactly beam filtering and separation.

It would have been obvious to one of ordianry skill in the art at the time of invention to include a Fresnel lens in the system of Franz in view of Spies in order to achieve said advantage.

Conclusion

Several facts have been relied upon from the personal knowledge of the examiner about which the examiner took Official Notice in this Office Action mailed. The applicant must seasonably challenge well known statements and statements based on personal knowledge. See MPEP 2144.03; In re Selmi, 156 F.2d 96, 70 USPQ 197 (CCPA 1946); In re Fischer, 125 F.2d 725, 52 USPQ 473 (CCPA 1942); and In re Boon, 439 F.2d 724, 169 USPQ 231 (CCPA 1971).

A challenge to the taking of judicial notice must contain adequate information or argument to create on its face a reasonable doubt regarding the circumstances justifying the judicial notice. To adequately traverse such a finding, an applicant must specifically point out the supposed errors in the examiner's action, which would include stating why the noticed fact is not considered to be common knowledge or well-known in the art, a general allegation that the claims define a patentable invention being inadequate.

A seasonable challenge constitutes a challenge made as soon as practicable during prosecution. Thus, the applicant is charged with rebutting the well-known statement in the next reply after the Office action in which the well-known statement was made. If the applicant does

not seasonably traverse the well-known statement during examination, then the object of the well-known statement is taken to be admitted prior art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PATRICK J. CONNOLLY whose telephone number is (571)272-2412. The examiner can normally be reached on 9:00 am - 7:00 pm Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley, Jr. can be reached on 571.272.2800 ext. 77. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Patrick J Connolly/
Primary Examiner, Art Unit 2877